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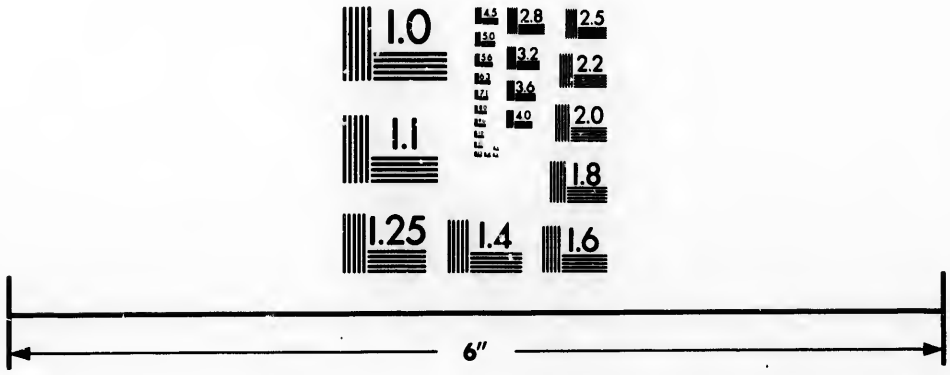

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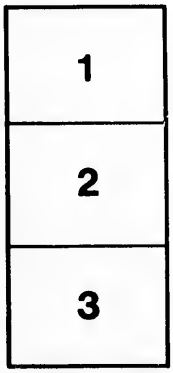

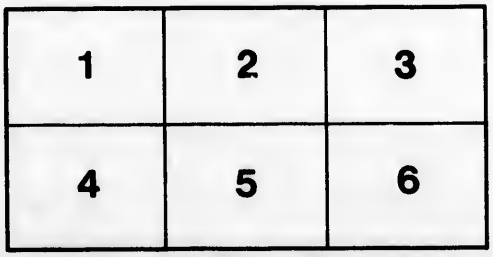

WIT

AN ESSAY

ON THE

ENLARGEMENT

OF THE

ERIE CANAL,

WITH ARGUMENTS IN FAVOR OF RETAINING THE PRESENT PROPOSED SIZE OF SEVENTY FEET BY SEVEN; AND FOR ITS ENTIRE LENGTH FROM ALBANY TO BUFFALO WITHOUT ANY DIMINUTION.

BY JESSE HAWLEY.

LOCKPORT, N. Y.
PRINTED AT THE COURIER OFFICE.
1840.

PREFACE.

The Enlargement of the Erie Canal was authorized under the Act of 11 May, 1835, by a Regency Legislature, possessing a majority of two to one,—to be carried on by its surplus Tolls only.

In the party conflict for political capital, between a Whig Assembly and a Regency Senate, the law of 18 April, 1838, was passed, authorizing a loan of four millions, to accelerate the progress of the Enlargement.

Notwithstanding this liberal grant, a re-action--a sort of ebb-tide—sat in against the measure, in which the politicians of both schools, commenced an opposition to its further progress; and even residents of the cities of New York and Albany, on whom the Canal had conferred its greatest benefits, entered into public discussions, in the newspapers, of both parties, and in both cities, opposing the measure as being of dubious policy, and incurring an enormous state debt, and proposed to reduce its dimensions, or limit its extent,—on which several motions were made in the Legislature, then in session, in accordance with these suggestions.

The session of 1839 closed without any definite Legislative action, either to advance or retard the progress of the work,—leaving those hostile feelings to agitate and convulse the State with doubts, and threats to arrest its future progress,—similar to the lowering aspect which over-hung its original construction, from 1818 to the passage of the two million bill, in Feb. 1821.

It was at this portentous hour the following Essay was written,—endeavoring to present a broad, perspicuous, and familiar view of the subject,—to spread it out, as on a Map, and to exhibit the Erie Canal, with its Enlargement, as the source of certain prosperity and future greatness to New York. It was drawn in the form of a Memorial, and presented to the House of Assembly, on 27 Jan., 1840, by Derick Sibley, Esq., from Monroe County, and referred to the Committee on Canals; and was, in part, included in the Report from that Committee, by G. W. Lay, Esq., from Genesee, on 28 March, 1840.

The very able and masterly Report of the Canal Board, of 9 April, 1840, soon came to the aid of Mr. Lay's Report. It was the former which mainly influenced the Legislature to grant a further loan of two millions for the Enlargement of the Erie Canal, by the act of 24 April, 1840, and which goes so far to ensure its final completion.

With regard to the merits of the subject, I humbly acknowledge, that, with all my feeble labor and study, the theme is not half exhausted;—that the finite mind of man cannot comprehend the IMMENSITY of the future commercial and political benefits to flow from the construction of this navigable connexion—this New York Hellespont—between the American Mediterraneans and the Atlantic;—and I venture to predict, that the history of the anomalous opposition to the original construction and subsequent Enlargement of the Erie Canal, will be viewed by posterity as a Fable of antiquity.

J. HAWLEY.

Lockport, 4 July, 1840.

ERIE CANAL ENLARGEMENT.

The following was written by Derick Sibley, Esq., as a preface to the publication of the Essay, which appeared in the Newspaper, published in the city of New York, called the "EMPIRE STATE," on 7 May, 1840:

"*To the Editor of the Empire State :*

Presuming, from the title of your paper, that it is designed to spread before the people of the Empire State, information and facts, in which the whole people have a direct interest, I ask the insertion in your columns of the following Memorial, which was presented to the Legislature of this State, on the 27th of Jan. last. It is from the pen of Jesse Hawley, Esq., now of Lockport, in the county of Niagara, but formerly of Rochester, in the county of Monroe. His friends claim for him, that he was the *projector of the over land route of the Erie Canal*, and was the author of the celebrated Essays, signed "HERCULES," published in the *Ontario Messenger*, in 1807. Those Essays may be found re-printed in the Appendix of Dr. DAVID HOSACK's Memoir of DE WITT CLINTON, from page 300 to 340, and they delineate the route of the Erie Canal almost exactly where it was adopted.

The productions of his pen are rich in facts and statistical information, and his liberal and enlarged views will be found interesting to all who look at the prospective commercial prosperity of the nation.

ONE OF YOUR READERS."

To the Honorable the Legislature of the State of New York, in Senate and Assembly convened, the MEMORIAL of JESSE HAWLEY, of Lockport, in the County of Niagara, and his arguments in favor of sustaining the Enlargement of the Erie Canal, on the present proposed size of seventy by seven feet, and for its entire length to Lake Erie, without any reduction of its dimensions :—

HUMBLY SHEWETH :—

That on the 25th April, 1839, Mr. Powers brought into the Senate a bill, the first section of which reads as follows, viz:—"The plan of the enlargement of the Erie Canal is hereby so far modified as to reduce the dimensions of the enlargement of said Canal from seven feet deep and seventy feet width, to six feet deep, and in general sixty feet width of surface."

That the public mind was previously agitated with frequent discussions in our newspapers at Albany and New York, and of both political parties, for a similar reduction of the enlarged dimensions of the Erie Canal.

That at a meeting of the citizens of Lockport, held on 27th March, 1839, to take into consideration the subject of the enlargement of the Erie Canal, under these agitations of the public mind, and the true policy of the state of New York in relation thereto, it was said,—"We therefore consider the proposed dimensions of seventy feet by seven feet for the enlargement of the Erie Canal, to have been very deliberately investigated, debated, concluded

"upon, and since concurred in, for more than three years, as being now a ques-
"tion definitely settled, as it were by a general convention, and as forming a
"solemn decision that no trivial, transient or temporary cause ought to disturb
"or unsettle:—And we most sincerely deprecate any suggestion being now
"made to alter and reduce those dimensions, as opening a door to let in a vas-
"cillating course of legislation on our system of internal improvements, which
"may threaten to overthrow the whole system."

These preliminaries present the subject for consideration, and which I will attempt to discuss under the three following heads, viz:—

1st. What are the superior natural advantages which the state of New York possesses for a Canal to connect the navigation of the upper Lakes with the Atlantic?

2. What are the benefits already derived to the state of New York, (and the Western country) from the present Canal, during the short period of thirteen years since its completion?

3d. What have been the former conclusions on the subject of the enlargement of the Erie Canal, under the various discussions had in the official reports made to the Legislature, during the four years past?

The first head leads us to investigate the geographical and the topographical outline of the continent of North America, as having some peculiar features belonging to itself; in its possessing two ranges, or chains of mountains, for the support of its enlarged width, as well as of its extended length.

The first range commences at Cape Horn, and extends north eleven thousand miles to the Frozen Ocean, and forms the *back-bone* of both the North and South Continents,—called the Andes of the South, the Cordilleras of Mexico, and the Rocky Mountains of the north, with a general course through the north continent of N. 10 degrees W., being nearly parallel to the western coast, and from five hundred to seven hundred miles inland.

The other and eastern range is called the Appalachian chain of mountains, and may be termed the *breast-bone* of the north continent, taking its rise out of the plains or table lands of Georgia and Alabama, in lat. 33 degrees N. and long. 6 degrees W. from Washington, and running two thousand miles on a course N. 33 degrees E., nearly parallel to the Atlantic coast, and from one hundred to three hundred miles inland,—passing through Pennsylvania in seven parallel and contiguous ridges, as the Alleghany mountains; thence spreading, branching, breaking and passing through New York, as the Highlands, Fishkill, Blue Ridge and Cattskill mountains; thence gathering more compactly and passing through Vermont, as the Green Mountains; through New Hampshire, as the White Mountains; and forming the Boundary Line between the state of Maine and Lower Canada, runs out and terminates under 48 degrees N. lat., near the southern shore of the Gulf of St. Lawrence.

The extent of territory lying between these two chains of mountains is about one thousand miles in width at the south end, on the 33° N. lat., lying between the 6° and the 26° of W. long. and about 1500 miles wide on the 42° N. lat.—lying between the 2° and the 30° W. long. and extends north & south from the 30° to the 50° of N. lat., equal to 1400 miles,—and forms an area of about 1200 by 1400 miles square, and containing 1,500,000 square miles;—a territory as large as the western half of Europe, [as large as all Europe, excepting Russia and Turkey,] with its twenty kingdoms, numerous principalities, and 150 millions of population;—a territory thirty times as large

as that of the state of New York, and with the same ratio of population, would contain seventy millions of people.

This vast valley, lying between the confines of these two mountains, occasionally called the valley of the Mississippi, and the valley of the Lakes, accumulate large bodies of waters into lakes and rivers, which afford an extensive range of interior fresh water navigation, *but has only two outlets* to the oceanic or tide-water navigation, viz., the St. Lawrence and the Mississippi, which are four thousand miles apart by their inland line of communication, and about the same distance by the traverse of the Atlantic coast.

The head waters of both these outlets take their rise on the summit table land in the northwest corner of the valley, under the 49th degree N. lat. and 18 degrees W. lon.—the one in the Lake of the Woods, and the other in its vicinity—and thence extending from their sources, like a broad spread fan, eastwardly two thousand miles, and southwardly three thousand miles, to their respective estuaries.

The eastern outlet, through the St. Lawrence, takes its source in the Lake of the Woods, and gathers its waters into a chain of five large Lakes, which, with a succession of outlets, in passing from the upper to the lower lakes, forms the largest body of inland Mediterranean Seas on the globe, affording a navigable coast of five thousand miles, (3000 of which lie in the United States,) and containing an area of one hundred thousand square miles of water—their channel lying in a line nearly southeast for one thousand miles to the head of Lake Erie—thence turning and running northeast one thousand miles to the ocean, passing over the Falls of Niagara, through Lake Ontario, down the St. Lawrence, with a rough, rapid, and heavy navigation, to the tide-waters at Montreal; thence, with tide-water, one hundred and eighty miles, to Quebec; and thence four hundred and fifty miles, down the river, widening into a strait, where it disembogues, with a broad estuary, into the Gulf of St. Lawrence, under the 50 degree of N. lat., with a frozen and tempestuous navigation, ice-bound nearly seven months in the year;—as remote from the West Indies as it is from Europe,—and from the commercial part of the Atlantic coast, as is that of the Mississippi, and equally dangerous and difficult in its navigation.

The southern outlet gathers its waters from the utmost verge of the valley; from the east, the west, and the north, and forms the mighty Mississippi, of three thousand six hundred miles in length, called the *Father of Rivers*, which, with its numerous and extended branches, spreading like a majestic oak, drains two-thirds of the valley, and empties its waters into the Gulf of Mexico.

The Mouths of the Mississippi consist of several narrow channels, without safe and convenient harbors for the accommodation of its shipping; with its mart one hundred and five miles up the river, under the 30th degree N. lat., almost within the torrid zone, subject to the fevers of a tropical climate, with a sultry sun that shortly injures and perishes mostly all articles of merchandize, as well the finer fabrics of European manufacture, as of the coarser materials of agricultural and home productions; whose winter business is also interrupted by frosts on the upper waters; and her mid-summer business, by her desolating epidemics.

New Orleans is indeed commodiously situated for trade with the West Indies, yet producing some of their staple articles, viz., cotton, sugar, molasses, &c., in competition with them; but being placed at double distance from the commercial nations of Europe, with the difficult and dangerous navigation

through the Caribbean seas and Bahama channels, she cannot become the main market for the supply of her up-the-river country with European merchandize —not more so than Quebec for the supply of her back territories with West India goods. And the remote distance of four thousand miles between Quebec and New Orleans, with a circuitous and dangerous coast navigation, impedes and precludes a reciprocal commercial intercourse between them.

While the waters of the Mississippi, with its numerous and long extended branches, mostly flow in a smooth and placid, but a stern and rugged stream, affording a channel for an almost uninterrupted natural boat navigation of from twenty thousand to thirty thousand miles, in all their varied extent, with only few impediments from rapids and cataracts, but with a strong descending and forever ebbing current, which was a very formidable difficulty to overcome, until the invention and introduction of steamboats; and while the navigation of the Upper Lakes was impeded with the insuperable barrier of the Niagara Falls, the dangerous rapids of the St. Lawrence, with the tempestuous sea, and iron-bound coast of its Gulf.

With these many and formidable impediments to the foreign trade and commerce through the two natural outlets of the *vast plains and prairies lying beyond the Mountains*, although inheriting the luxuriant soil and genial climate of Egypt, Greece and Palestine, yet they were considered by our ancestors as being almost valueless for the want of a more direct, navigable channel of intercourse with the Atlantic; and our Pilgrim Fathers, and their immediate descendants, merely settled the narrow belt of land lying along the Atlantic shores, in front of the Apalachian mountains: nor did they make any attempt for a settlement beyond them, until after the American revolution.

Even at that later period, Spain owned Louisiana, and England the Canadas, and both these outlets being in the possession of those two foreign nations, afforded but a faint promise of their future value to the *then* infant empire of the United States.

But in twenty years the new States of Kentucky, Ohio, and Tennessee, came to their maturity for admission into the Union, when the free navigation of the Mississippi was found worthy of a consideration, and the United States, therefore, made a purchase of Louisiana from France, as the grantee of Spain, in 1804, to obtain a free navigation for its upper waters with the Atlantic; and even this purchase was considered by many at the time, as of dubious and mis-judged policy.

England being more tenacious of her colonies, than either France or Spain, no purchase of the Canadas was ever contemplated; but in the course of another twenty years, the commerce of the Lakes had grown into value, so as to induce the President, Monroe, in his message to Congress of December, 1823, to propound the idea of a treaty with England for the free navigation of the St. Lawrence from its source to its mouth. But the Erie Canal was then in progress and completed in October, 1825, and no proceedings have since been instituted to obtain the privilege of that navigation, other than what the commercial interests of Great Britain and her colonies have voluntarily conceded.

In the projection and completion of the Erie Canal, the saying that the genius and enterprise of the American People are commensurate with the exigencies of their necessities, has been fully realized and amplified.

THE ERIE CANAL forms a new outlet—an artificial channel of navigation—the HELLESPONT BETWEEN THE UPPER LAKES AND THE ATLANTIC—devel-

oping some peculiar and remarkable features in its delineation, and commanding a superior location for its mart and depot—market and warehouse.

Its peculiar feature consists in taking the advantage of the elevation of the waters of Lake Erie above the level of the tide-waters of the Ocean, by tapping the lake at its throat for a feeder, and drawing its waters into the Erie Canal, as the channel of a new and artificial river, and passing them through Tonawanda Creek twelve miles; thence through a channel carved out of the rock-bound rim of the great basin of Lake Erie, by an excavation to the depth of twenty-five feet at Lockport; thence letting down the waters of the canal, by a set of 10 combined locks, 60 feet, on the middle terrace of the Queenston mountain; thence along its slope to the east, with a very gentle declivity, extending into Monroe county, until it terminates at Brighton village, four miles east of Rochester, forming the second longest line of level canal, being sixty-five miles in length, where the waters are again let down by four locks into the Irondequoit valley, which has the peculiar topographical feature of severing the Queenston from the Alleghany mountains; and after being made to traverse the valley in a meandering course for eight miles, and to pass the Irondequoit creek over an embankment of seventy feet elevation, in order to maintain the level of the canal; crossing the valley at Bushnell's basin, and being led along its eastern verge four miles northwardly to Fairport; thence it is turned to the east and passed through Perrinton swamp, a distance of six miles; this swamp lies at the foot of the most northwestern termination of the western ridge of the Alleghanies as they pass through Pennsylvania, and which thence diverge from the eastern ridges, turn more to the north than their general course—shoot across western New York, in broken spurs and ledges gradually declining into terraces of rolling upland, and become extinct as they approach the margin of the northern waters;-which makes of Perrinton swamp the celebrated point where the line of the Erie Canal circumnavigates the Alleghany mountains to the north about in an open canal, without the necessity of tunnelling the mountain at the distance of one hundred and twelve miles from its source at the foot of Lake Erie, and seventeen miles east of Rochester; thence carrying on the waters of Lake Erie to Montezuma one hundred and sixty miles where it receives a new supply for the continuance of its line onward to the Hudson, and returns those Erie waters into Lake Ontario by the Seneca River.

I will here remark, that along this line there are two pieces of work which will be left to be accomplished by posterity, for a more effectual and complete improvement of the Erie Canal; the one, is to run a direct line from Brighton village across the Irondequoit valley, on a high embankment, to Fairport, and reducing the distance from thirteen, to six miles; the other is to carry on the present level of the canal from Newark, across the head of the Cayuga marshes over a heavy embankment, and thence to Syracuse, on the Rome level, extending that longest level of the canal, from sixty-nine, to one hundred and thirty miles,—superseding the use of thirteeen locks, and literally feeding the canal with the waters of Lake Erie, to the Hudson.

From Buffalo to Albany by the artificial channel of the canal, is three hundred and sixty-three miles, which will be straightened and reduced a few miles under the enlargement—thence on the Hudson river to New York, one hundred and forty-seven miles, making five hundred and ten miles from Buffalo to New York, and from Buffalo to Montreal four hundred miles. From New York it is only twenty miles to the broad Atlantic at Sandy Hook—and from Montreal it

is [180 and 450 make] six hundred and thirty miles to the Atlantic in the Gulf of St. Lawrence; and about an equal voyage from either port, to Europe.

Giving to the state of New York the superior advantage for constructing an artificial outlet from the upper lakes to navigate around the northwestern extremities of the Alleghany mountains in an open canal of three hundred and sixty-three miles in length to Albany,—and at that place forming a junction with the tide waters of the Hudson River, being a natural canal with the flow of tide water one hundred and seventy miles, from the ocean, through a gorge carved out of the Highlands by nature, to form a deep ship channel through the most eastern range of the Alleghanies, forming a prominent gulf that constitutes the military key of the continent—the GIBRALTAR OF AMERICA—and which here permits the ocean tides to pass its confines and flow onward, thence one hundred miles to Albany, the only passage of tide-water known to penetrate and pass the line of the Appalachian chain of Mountains.

With this passage of a new outlet from the upper lakes, running nearly at right angles with the general line of the two natural outlets, and at the point of the nearest approximation of the great valley, to the Atlantic, in part by an artificial, and in part by a natural canal of five hundred and ten miles of inland narrow water navigation, safe from all the storms, tempests, and sea-risks of broad water, requiring no insurance, the line boats, as common carriers, being our insurers, we reach the city of New York, beautifully located about midway between the Gulfs of Mexico and the St. Lawrence; under the 40o, 40. N. lat. near the northern line of the temperate zone, with a mild and moderate climate that favors the preservation of all articles of merchandize; at the confluence of the North and East rivers; with a spacious inland bay, a brisk ebb and flood current of tide waters, and good anchoring ground, forming altogether the most safe and commodious harbor and road stead for shipping of any size and number, in America; so rarely interrupted by tides, frosts or freshets, as to be in good condition for business nearly fifty weeks in a year; and so centrally located in the middle of the Atlantic shores of our continent, and only twenty miles inland from the ocean, as to hold a convenient intercourse with all of its extremities, and to constitute the city of New York, the emporium of trade between Europe and the two continents of America; from whence an European voyage can be made with greater facility than from Quebec, with nearly twice the facility as from New Orleans, a West India voyage nearly equal with New Orleans, and as five in a year, to two from Montreal or Quebec.

With these superior natural advantages lying within the territory and jurisdiction of the State of New York, to be improved by skill and science at the cost of her government, *and held in perpetuity, to be enjoyed by her sovereignty, as State properties, for State revenues, and the commercial prosperity of her citizens;* by the construction of the THIRD OUTLET from the upper valley of the Mississippi and the lakes, to the Atlantic, she can double the amount of its trade by the increase of values, divide the business with the two natural outlets, and leave to each a greater portion than what would be the amount of the whole, were it left to remain in a natural and unimproved condition.

—

Under the second head I will endeavor to show the benefits already derived to the State of New York and the western country from the present minor size of the Erie Canal of only forty by four feet dimensions, and in the short period

of thirteen years;—furnishing materials for a rule of calculation on the future benefits to be derived from its enlargement.

For the calculations of its influences on the growth of values in the State of New York, we have the indubitable data of the Comptroller's annual reports of the aggregate amount of the Town Assessment Rolls in the State; (and all of us who have taken our turns as town officers, well know these valuations are rarely overrated, and often underrated 20 per cent.)

The aggregate valuation of the real and personal properties in the Sate of New York, for the year 1815, was two hundred and eighty-one millions;—in 1825, was two hundred and sixty-three millions, being a decrease of eighteen millions. In October, 1825, the Erie Canal was completed and opened for navigation, having cost $7,143,790.

In 1835, it was 530 millions;—and in 1838 was 627 millions,—being an increase of 364 millions in 13 years, equal to fifty-one times the original cost of the Erie canal, exclusive of the Champlain Canal.

For the want of data, we shall have to get at an estimate of benefits of the Erie Canal on the western country, by an approximation. The territory lying west of New York, north of the Ohio River, east of the Mississippi, and south of the Upper Lakes, is estimated to contain two hundred eighty thousand square miles, equal to 179 millions of acres.

Let us presume the increase of values of properties in this section of territory are equal to an average of two dollars per acre; making a growth of 358 millions, which added to the 364 millions in New York, would make a gross increase of values of 722 millions, equal to one hundred times the cost of the Erie Canal, during the first thirteen years after its completion, and now yielding one and a half millions of annual tolls;—and its business, even in its infancy, outgrowing its dimensions.

But you may object that I have given credit to the Erie Canal alone, for all the growth and prosperity of the country.

Then please to make as many deductions, for the natural growth of the population of the country, for the steady accumulation of values by its progressive industry, for the Champlain Canal, and for all other causes which you may choose to enumerate; and then, there will be enough left to convince you that more than the half of this accumulation of values, is justly to be credited to the Erie Canal. It is to be remembered that the growth of population and of productive labor were alike active and progressive, from 1815 to 1825, it being in a time of peace, as they were from 1825 to 1835; and yet in the former period of ten years, their market values depreciated nearly ten per cent., while in the latter period of ten years, they increased over 100 per cent.

Since the completion of the Erie Canal in 1825; since the doubtful question on the *then* devious and perverse policy of some of the New York politicians (and even of the city of New York, which has derived nearly one-half of the growth of values in the State) whether the Erie Canal should be permitted to reach Lake Erie, and derive its name, or to be made to stop short of it, at some point of inland termination, as at Montezuma, Lyons, Palmyra, or Rochester, was finally settled by the prevalence of the Clintonian policy, by its completion, in its extension to Lake Erie and its termination at Buffalo; the Ohio and the Miami canals of 334 and 65 miles in length, has been commenced and completed.

Since then, in later time and under the influences of the former, other and extensive improvements have been commenced, of which a late Chicago paper in publishing the report of the Illinois Canal, gives us a list of the following canals, as some of them being already completed, and of others that will be finished in three or four years, viz: "The Michigan and Erie Canal, including both the branch to Michigan city, and to the Illinois State line, 198 miles; Wabash and Erie Canal in Ohio and Indiana, 325 miles; Central Canal, Indiana, 310 miles; Cross-cut Canal, Indiana, 43 miles; Miami Canal, Ohio, 205 miles; White Water Canal, Indiana, (length of Richmond branch estimated) 90 miles; Harrison, on the White Water Canal, (estimated,) 30 miles; making twelve hundred and one miles. There are also some navigable feeders, increasing the length 30 or 40 miles. These canals are intersected at various points by railroads and other improvements, which must increase their usefulness and importance."

To this list add the Illinois Canal of 101 miles in length from Chicago to its junction with the Illinois river, making with the Ohio and Miami Canals, a total of seventeen hundred and thirty miles of canals; beside the natural navigation of the rivers and lakes of a much greater length, and also of many miles of railroads projected for the facilities of commercial communications through this section of territory.

It is to be observed that the Illinois canal (of which three-fourths of its line has been under contract for a year past) is of seventy feet by seven and an half feet dimensions, and its locks 110 by 18 feet within the chambers; being six inches deeper, and otherwise of the same dimensions as is proposed for the enlargement of the Erie Canal.

The gross tonnage of American vessels in 1818, was 2,068 tons; in 1838 it was 36,447 tons, (viz. Buffalo district, 9,615; Presque Isle, 3,216; Cuyahoga, 9,495; Sandusky, 1,467; Miami, 2,807; Detroit, 8,657, and Mackinaw 1,196 tons,) being an increase of nearly seventeen times the 2,068 tons, in 20 years.

The influx of population, the rise and sale of lands, the extravagant speculations which have been made in the Government lands within this section of territory, since 1825, fully demonstrate that the influences which the Erie Canal has had upon it, are equal to the calculations herein given.

The amount of tonnage of canal boats, passing and re-passing Utica for a year, are estimated greater than that of foreign shipping entering and clearing the port of New York.

In order to illustrate the *third head* of my argument, and to show you what considerations have been given to the subject by your predecessors in office, I could quote a volume of extracts from the public documents; but for the sake of brevity, I shall do but little more than to refer you to them for perusal at your leisure.

There are twelve public documents which relate in part or all to the enlargement of the Erie Canal, under the law of 11th May, 1835, which authorizes its enlargement. The first and leading one, is the report of the Canal Board to the Legislature on 26th Jan. 1836, No. 98 consisting of 14 pages, and detailing the proceedings of the Canal Board on 30th June, and 20th Oct. 1835; and also of the Board of Canal Commissioners of the 6th and 17th July; accompanied by seven other documents marked A. B. C. D. E. F. and G. consisting of 290 pages collectively, and containing the surveys and estimates of the cost of the enlargement, made by the four State Engineers, Messrs. Jervis,

Roberts, Mills, and Hutchinson, who collectively had surveyed from July to October, the whole line of the canal from Buffalo to Albany, for the basis of the proceedings of the Canal Board at their adjourned meeting held on 20th October, when they determined on the enlarged dimensions of the Erie Canal "to be seven feet depth of water, and seventy feet width of surface, and locks 110 feet long and 18 feet width of chamber; reconsidering the decision made on 3d July, for the enlargement to be sixty feet by six feet dimensions."

The 9th document is a part of the annual report of the Canal Commissioners of 20th January, 1838, No. 61, of 48 pages, with reference to pages 22, 23, 24, and 25. The 10th is the report to the House on Internal Improvements, relative to the enlargement of the Erie Canal, of the 13th March, 1838, No. 245, of 7 pages. The 11th is a part of the annual report of the Canal Commissioners of 22d January, 1839, No. 86, of 47 pages, with reference from the 6th to the 24th pages. And the 12th is a special report from the same, to the House of Assembly of 30th March, 1839, No. 339, of 21 pages.

I will add the 13th document, being the Report of the Canal Board on the Oswego and Utica Ship Canal of 30th March, 1835, accompanied by the Report of the Engineers, Messrs. Jervis, Hutchinson and Mills, and marked as Assembly Document, No. 334.

In this mass of upwards of 400 pages of documentary matter, the enlargement of the Erie Canal is discussed in all its relations, and on which our Commissioners and Engineers had bestowed their best skill as scientific American artists. But that part which more immediately relates to the specific dimensions of the enlarged canal, and which is the direct point of our present subject of consideration, will be found in almost every page of the first document; also in pages 15, 58, 119, 120, 190, 191, 196, 197, 200, 201, 202, 281 and 282 of the continuous pagings of the seven documents of the Engineers Reports; and in the 5th, 6th and 7th pages of the 12th document, from which I make the few following extracts, and leave the remainder for your perusal:—

In Document A, page 15, Mr. Jervis says—"The present canal is adapted to a boat of 31 tons; the six feet canal to a boat of 71 tons, and the seven feet canal to a boat of 103 tons."

In Document B, page 119, Mr. Roberts says, "that if the water line or width of the canal is seventy feet, and if this is four and an half times the width of the boat (which in that case will be 15 1-2 feet,) such width of boat will pass through the canal *as through an indefinite expanse of water.*

"It is admitted that the length of a boat may, with economy in transportation, be eight times its width—but suppose it to be seven times—15 1-2 by 7 is 108 1-2 feet, or varying from 100 to 108—the length of the locks might be 115 or 120.; such a boat, when full loaded, might carry a freight of 140 tons."

In Document D, page 197, Mr. Hutchinson says: "the Erie Canal is forty feet wide on the surface and four feet deep, and the locks are ninety feet long by fifteen wide in the chamber. The width of these locks are disproportioned to the dimensions of the canal, and in the improvements, the canal and locks should be constructed to pass boats best adapted to economy in transportation. Experiments have been made by the Chevalier Du Buat, by which it was shown that the canal should be four and an half times the breadth of the boat, and with the ratio of the transverse section of the canal, as compared with the boat of 6 46-100 to 1, the resistance of the boat, with a moderate velocity, would be the same, *as on an indefinite extent of water.*"

In page 200—"Boats of 120 tons, as has been shown, are nearly a quarter larger than the average of vessels on Lakes Erie and Ontario, and correspond well in size with the usual coasting tonnage on the Hudson river; and if these dimensions are sufficiently large for the prospective business, then a canal of sixty five feet wide and 6 1-2 feet deep, will require locks one hundred five feet long and fifteen feet wide, to be best adapted to economy in transportation."

In Document E, page 281, Messrs. Jervis and Mills say—"In a canal six feet deep and sixty feet wide, a boat may be navigated with 100 tons burthen; but in our opinion, such a canal will not afford cheap and convenient navigation for boats of more than 70 to 80 tons, and will fail to accommodate that class of boats that may be most conveniently navigated on the Hudson. The same ratio would give for a canal of 7 feet by 70, a boat that would afford convenient and cheap navigation for 100 to 110 tons; and for a canal 8 feet deep and 80 feet wide, a cheap and convenient navigation for boats of 130 to 150 tons." In page 283—"We are of opinion that the 8 feet canal, as before defined, is the most suitable to be adopted in the enlargement of the Erie Canal."

In these investigations of our public officers they endeavored to study into the science of canal navigation by traction, in order to ascertain as near as possible, "what amount of cargo approaches nearest the maximum that can be transported on a canal with the greatest economy," which they found "experience had no where pointed out with certainty"—and although the engineers differed among themselves on some minor points, yet they have very nearly agreed in the general principles laid down—that a column of water requires to be 4 1-2 times as wide as the boat, for her to pass through it, *as through an indefinite expanse*, or a broad sheet of water—that is to say, a boat passing through the water, makes a *wake* equal to 4 1-2 times her own width:—

That when the width of the boat is of a greater proportion to the width of the canal—then her *wake* strikes the banks of the canal, washes and wears them, and produces a resistance to her own speed something like *dead-water*, which wastes a part of the power of traction.

That on this principle, the present width of the Erie Canal, being forty feet, would require our canal boats to be reduced from 13 to 9 feet width for the better economy of draft, and in order that they might pass through as in a broad expanse, i. e. to make no *wake* against the banks of the canals.

That our canal boats have hitherto been taxed on our canals subject to this waste and loss of power and strength, although they have brought in eighteen millions of tolls since the completion of the canals.

That a boat of 15 feet is considered an economical width for conveying freight—but that width is disproportioned to the present width of the canal and loses economy of traction. That the length of a boat may be 7 or 8 times her width for the economy of freight.

That no specific depth for a boat has yet been ascertained and given.

That for an increased economy in transportation, these relative proportions should be consulted in the enlargement of the Erie canal, as being some of its essential improvements.

That in consulting the relations of trade, of the transhipment of cargoes from other vessels, and of traction on the tow-path of the canal, a boat of 100 tons burthen is considered to be the most suitable size.

That a boat of 100 feet keel, 16 feet beam, and 6 feet in the hold (below her overdeck) gives 9600 cubic feet of hold, which divided by 95 cubic feet, the

carpenter's rule of tonnage, gives 101 tons of carpenter's measure [and with a seven feet hold could be made to carry 1000 barrels of flour.]

That these views of the subject demonstrated to the Canal Board, at their adjourned meeting on 20th October, 1835, the dimensions of seventy feet wide and seven feet deep, with locks 110 feet long by 18 feet wide, as more suitable for the enlargement of the Erie canal, and led them to reconsider their former resolution of the 3d July for 60 by 6 feet dimensions; and that these were probably the views and conclusions of our public functionaries, whose office and profession it is to study the principles of artificial navigation, and to grow it up into science, for the advice and information of our legislative authorities. And these views have been accepted, approved, and adopted by the Legislature of 1836, 1837, 1838, and until a mania—*a madness of purpose* seemed to have possessed your immediate predecessors.

These investigations afford the following synopsis of the subject:—

That there is a large and fertile valley lying between these two great chains of the east and west mountains of our North American continent, which in the visions of the future will one day abound with myriads of people and millions of wealth, enjoying an extensive inland domestic trade and a lucrative commerce with its several outlets to the Atlantic ocean; presenting subjects of great national interest which we have hitherto only superficially considered, known and understood, but which is well deserving a more thorough investigation by our merchants and statesmen; and although it is now lying among the back forests of our territory, yet it will ultimately become the middle portion of the American Empire; and that probably in fifty years the CAPITOL of the United States may be moved from its present site on the tide waters of the Atlantic, and carried over the mountain to seek a new location on the verge of the Valley—at Pittsburg, Portsmouth, Cincinnati, or Louisville.

That the State of New York holds the KEY to the third—the middle—the artificial outlet for the channels of foreign trade and commerce with this vast interior valley; and the irregular boundary lines of her territory covers the whole ground for both the routes leading from Lakes Erie and Champlain to the middle Atlantic, and secures to her the sole property and jurisdiction of them, as her own.

That there is no other place or passage along the whole line of the Alleghany mountain, where those vast bodies of inland waters can be tapped and drawn through an artificial channel into the Atlantic—except that the Mississippi river can be taken out below the Chickasaw Bluffs and led in a southeastern direction along the declivity of the land across the country and let down into the Atlantic at a suitable harbor between the St. Mary's and the Savannah rivers; and thus to navigate around the southern extremity of the Appalachian mountains, as New York navigates around their northwestern extremity. This route was suggested by Mr. Albert Gallatin in his report on canals in April 1809—and while it is an improvement of obvious utility, and one which will ultimately be accomplished for the accommodation of the middle and lower Mississippi trade—yet as its line of route must necessarily pass through the territories of the state of Mississippi, Alabama and Georgia, it will be slow and tardy in its progress as a *State work* conjointly between them—but which ought never to be done as a national work.

That all the intermediate places and passes of the Alleghany mountains will either have to be surmounted by Rail-roads, as in Pennsylvania, or tunnelled; as for the Chesapeake and Ohio Canals.

That the Ohio river with its numerous and wide spread branches, from the Alleghany river on the north, to the Cumberland and the Tennessee rivers on the south, cover and include all the head springs and fountain waters that issue from the western slope of the Alleghany mountains extending along their whole line from Georgia to western New York, and holds all the trans-Alleghany communications with the head waters of the Susquehannah, the Potomac, James, Roanoke, and Savannah rivers—and whatever art, science, industry, and capital may, or can do for the improvement of those intermediate passes, to bring them into competition with the channel of trade leading down the third or middle outlet to the emporium of New York—and whatever efficiency they may be made to acquire during the season of spring freshets, affording competent supplies of water—yet they will forever be subject to the mid-summer and autumnal droughts which have already began to impair the navigation of the Ohio river at this early period of the settlement of its country, and which must continue progressively decresent with the progress of the clearings of the surrounding forests and opening them to the more immediate influence of the solar rays for the evaporation of their waters; while the waters that feed the *Hellespont of the Lakes* will continue ample, and durable as the Falls of Niagara.

That although the Erie Canal is ice-bound and closed for five months in the year, yet during the other seven months it is in a good and permanent condition for business, with durable feeding waters—safe as land carriage—not swift and fleet in its passage—nor precarious—but slow, steady, and of a sure calculation, within twenty-four hours, for a certainty.

That no single act—no public measure—except the Declaration of Independence, and the formation of the United States Constitution, has done so much to promote the public prosperity and produce a new era in the history of the country, *as the construction of the Erie Canal.* It is the father of canals in America; and of the State system of internal improvements which has grown up under its benign influences; and that its political influence and importance to the Union, for the construction of internal improvements, *by State funds—as State properties—for State revenues,* on the principle of State Rights, is equal to its commercial values.

That the Public Domains, which were formerly State properties, and ceded by several of the States, together with a larger and better portion of their revenues, to form a joint stock property, and compose the ways and means for the basis of a national government, and which has now grown into an excess of national revenues, and caused a diminution of State revenues,—*therefore they ought now to be returned to the several States,* by dividing the avails of the sales thereof, on a federal ratio, in order to replenish the meagre revenues of the States, and enable them more efficiently to construct their systems of internal improvements on *State Rights principles* for increased resources of State revenues, and to grow up the values of the soil and properties of the country.

That New York should more emphatically claim of Congress her quota of the avails of the sales of public lands, to aid her State funds, for the extension and perfection of her system of internal improvements, as her *requital* for having been the first among the old thirteen States which ceded her portion of the

public domains, together with the lucrative revenues of her New York City Custom House to the national government.

That this vast range of inland navigation, trade, and commerce, to be grown up in the interior of the United States under the industry and enterprise of our people, will be greatly enhanced in its values, by the whole circle of it being fostered by the laws of one general government, instead of being embarrassed and vexed by the varied laws of revenue and inspection of several different conflicting and competing governments, like those in western Europe; and this uniformity of commercial and revenue regulations, being literally a free trade intercourse, will greatly promote the business, social and political relations of our people, assimilate their language, manners, habits, and customs, and cultivate a national character.

That canals, like rivers, unite and combine the reciprocal interests of community. Bonaparte's maxim was *that rivers unite—mountains divide:* but the extension of internal improvements in the United States will eventually subdue the dividing influences of the American mountains, and the Erie canal, as opening a new avenue for foreign trade and commerce with the interior, will serve to cement the political, with the commercial union of the western, with the Atlantic states.

Entertaining these anticipations of the future growth and greatness of our country, it should become the pride and purpose of the citizens of New York to preserve, retain, and improve these natural State advantages, as State properties for the growth of the population and prosperity of her own people; that by the improvement of these local advantages of the state, and with her membership in the national confederacy, she may regain the equivalents of her concessions from her State properties and prerogatives of sovereignty, to form a national government; and from the commanding position which she may acquire, and through the intelligence, integrity and magnanimity of her statesmen and her merchants, she may retain a predominant influence in our national councils, conservative of the great principles of our National Confederacy.

With these imperfect elucidations, and even more feeble anticipations of the future, I leave the subject to the wisdom and sagacity of your Honorable Body, under the ardent hope that you will long hesitate before you entertain any proposition for the reduction of the present established dimensions for the enlargement of the Erie Canal; and your petitioner, as in duty bound, will ever pray.

Lockport, 11 January, 1840. J. HAWLEY.

APPENDIX.

Albany, March 28, 1840.

JESSE HAWLEY, Esq. Lockport:

Dear Sir—In the early part of the session Mr. Sibley referred to me the able memorial drawn up by you on the subject of the Enlargement of the Erie canal. He requested that I would present the views contained in the same, provided I approved of them, and it was thought advisable to make a general report at this session.

The feeling of hostility seemed to be so strong and rather increasing than diminishing, against the Enlargement in particular, that I was urged to make a report.

The views presented by you seemed to me not only new, but important, and I have given them in substance stating they were yours.

I have enlarged upon the various topics discussed and introduced a variety of statistical matter in support of the several arguments.

It was a subject entirely new to me, but I have bestowed much pains to render it as interesting and useful to the cause of internal improvements as my time and opportunity would permit.

It has been already and will continue to be assailed for the enlarged and expanded views presented of the power and resources of the country.

I have not said one word on the subject of the public Lands, although I agree with you, that the state have a just claim for an equitable distribution of the same. It appeared to me that this rather weakened than strengthened the subject. We have the ability and power within ourselves to carry out our system of internal improvements. A suggestion therefore of a matter uncertain and contingent seemed to me as though it carried the idea, that we felt inclined to size upon something remote and uncertain to lean on, because we doubted our own strength.

As soon as the report is printed it shall be forwarded to you and I trust it will meet your views of the subject. An extra number of copies were ordered to be printed and it will have an extensive circulation.

Your Respectfully,
GEORGE W. LAY.

Lockport, April 10, 1840.

GEORGE W. LAY Esq., Chairman of the Committe on canals in the H. of Assembly:

Dear Sir—I duly received your friendly letter of the 28th ult. saying that "early in the session my friend Derick Sibley Esq. had handed you my "petition to the Legislature on the Enlargement of the Erie canal. That the views presented therein "were not only new but important, and the subject entirely new to you; and that "you have given them in substance, *stating they were mine*, in a report which you "were urged to make in consequence of the strong and rather increasing hostility "towards the Enlargement. That it has been already and will continue to be assailed for the enlarged and expanded views presented of the powers and resources "of the country;—as soon ac the report is printed it shall be forwarded to you, and I "trust it will meet with your views on the subject."

I had with much labor and study, written that essay for the ardent conflict which was in action for more than a year past, to reduce the dimensions of the Enlargement, intending it for publication with my name to be announced as its author, and I put it into the form of a petition with my signature alone, addressed to the Legislature for greater efficacy than it could obtain as an anonymous publication in a newspaper.

I frankly acknowledge, that considering myself as being the projector of the over land route of the Erie canal, I had some motives of personal ambition on the occasion; and the friendly expressions contained in your letter, led me to suppose that you had fully understood and appreciated my motives from my friend, and that you were disposed to give me ample credit with the public as a reward for my labors.

Having confidently formed these expectations, I confess, that on the perusal of the copy of the report which you were pleased to send me, I was somewhat disappointed at your disingeneous treatment of my writings; that instead of quoting from them in their own language, giving me fair and honest credit for what I had written, as you have done from Mr. Clinton and others—you should have garbled the sentences, transposed the subjects, and intermingled your own language throughout the whole of it so as to give it the appearance of originality to the reader, in order to induce him to suppose you were the sole author of it; merely hinting at me in your 7th page, but in a manner so obscure that no person can readily understand to whom you referred, except those of my personal friends who had previous knowledge of the circumstances, obviously made, as a meagre apology for your unfair plagiarisms.

I sincerely regret the contingencies of the case, as it seems to impose on me the necessity of publishing my Essay, with your letter, at my convenience, in order to retrieve it from its obscurity in your report.

I am very Respectfully, Yours &c.,
J. HAWLEY.

GOVERNOR SEWARD'S RETURN COMPLIMENT FOR A COPY OF THIS ESSAY.

Albany, July 30, 1840.

My Dear Sir:

I thank you for your magnificent and glorious vindication of the Enlargement.

It is a splendid crown of the column you erected in earlier years.

Yours faithfully,
William H. Seward.

Jesse Hawley.